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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yoshinori Gondoh

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EXAMINER

CHOI, PETER Y

ART UNIT

PAPER NUMBER

1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,784	Applicant(s) GONDOH ET AL.	
	Examiner Peter Y. Choi	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-4, claim 1 recites that an average length of a smaller side of a gap is enclosed by warps and wefts of a claimed value. It is unclear exactly what structure is claimed. For example, the recitation of a smaller side of a gap presumes that there is necessarily a larger side of a gap. However, the claimed invention does not recite that there is a larger side of a gap or that the structures of the warps and wefts of the double structure are necessarily distinguished such that a smaller side of a gap and a larger side of a gap are inherent to the structure claimed. Additionally, it is unclear what constitutes "smaller" as the term is subjective and qualitative without guidance from Applicants' specification of objective and quantitative characteristics defining the scope of the claimed term. Additionally, claim 1 recites that the smaller side of a gap is enclosed by warps and wefts. However, the face side structure and the back side structure each comprise woven fabrics having warps and wefts. It is unclear if the smaller side of a gap is enclosed by warps and wefts of a singular face or back side structure, or if the smaller side of a gap is enclosed by warps of a face side structure and wefts of a back side structure, or vice versa. For purposes of examination, the limitation requiring an average length of a smaller side of a gap enclosed by warps and wefts is interpreted as a tight weave.

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Additionally, regarding claims 1-4, claim 1 recites that a total thickness of two layers of the double glass cloth. However, claim 1 does not recite a layer or specify which of the two layers of the claimed invention are further defined, since the claim only sets forth a face side structure, a back side structure, and a woven structure binding the face side structure and the back side structure. At a minimum, it appears that three "layers" are set forth in claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as obvious over USPN 5,175,034 to De La Porte in view of USPN 6,325,110 to Scari.

Regarding claims 1-4, De La Porte teaches a double glass cloth, comprising a double glass cloth which is composed of warps and wefts and has a double structure comprising a face side structure and a back side structure, wherein said face side structure and said back side structure are bound with a woven structure into one piece (see entire document including column 1 line 4 to column 2 line 35, column 3 lines 22-49, column 4 line 24 to column 5 line 2, Figures 1-3).

Regarding claims 1-4, De La Porte does not appear to teach that the total thickness of two layers of the double glass cloth is 10µm or more and 400µm or less. Since De La Porte is silent as to the thickness the double glass cloth, it would have been necessary and therefore obvious to

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look to the prior art for conventional thicknesses. Scari is classified in the same field in the art as De La Porte and provides this conventional teaching, showing that it was known in the woven fabric reinforcement art to form a woven glass fabric suitable for use in laminated composite structures as a woven fabric reinforcement, the woven glass fabric comprising a plain weave, and the fabric having a thickness ranging from 0.035 mm up to 0.13 mm (Scari, column 1 line 4 to column 3 line 15, column 3 line 42 to column 5 line 10). It would have been obvious to one of ordinary skill in the woven fabric reinforcement art at the time the invention was made to form the woven double glass fabric of De La Porte, wherein the fabrics each have the thicknesses as taught by Scari, as De La Porte and Scari are classified in the same field in the art, and motivated by the desire of forming a conventional woven glass fabric reinforcement having thicknesses known in the art to be predictably suitable for use in woven glass fabric reinforcement.

Regarding claim 1-4, the prior art does not appear to teach that an average length of a smaller side of a gap enclosed by warps and wefts is between 0 μ m and 50 μ m. However, De La Porte teaches that the properties of the cloth can be modified with cover wefts, in addition to the choice of the pile threads and cover weft threads (De La Porte, column 2 lines 35-58) in order to arrive at a denser arrangement of threads (Id., column 3 lines 22-49). Additionally, Scari teaches that optimizing the crossovers between warp and weft yarns results in dimensionally stable composite structure. It would have been obvious to one of ordinary skill in the woven fabric reinforcement art at the time the invention was made to form the woven fabric reinforcement of the prior art, wherein the warps and wefts are optimized such that the resulting weave is a tight weave, motivated by the desire of forming a conventional woven fabric reinforcement with a desired weave in order to arrive at a denser arrangement of threads and/or dimensionally stable

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composite structure. Additionally, it is reasonable for one of ordinary skill in the woven fabric reinforcement art to expect that forming a woven fabric reinforcement with a tight or optimized weave results in a stiffer, stronger, denser and less flexible structure suitable for the intended application, since such characteristics naturally flow from the type of weave.

Regarding claims 1-4, the prior art teaches that the double glass cloth is suitable for use for a printed wiring board (Scari, column 1 lines 4-11). Additionally, the limitation appears to recite an intended use of the double glass cloth. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition as the claimed double glass cloth, the invention of the prior art appears to be capable of performing the intended use.

Regarding claim 2, the prior art teaches that the face side structure comprises face side warps which only weave said face side structure, face side wefts which only weave said face side structure and common yarns which weave both said face side structure and said back side structure, and the back side structure comprises back side warps which only weave said back side structure, back side wefts which only weave said back side structure and the common yarns which weave both said face side structure and said back side structure (De La Porte, column 1 line 4 to column 2 line 35, column 3 lines 22-49, column 4 line 24 to column 5 line 2, Figures 1-3).

Regarding claims 3 and 4, the prior art teaches that the face side structure and back side structure comprise a plain weave (De La Porte, column 3 lines 22-49).

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Regarding claim 4, the prior art teaches that the face side structure and back side structure are bound together at a rate of at least one location per unit structure (De La Porte, column 1 line 4 to column 2 line 35, column 3 lines 22-49, column 4 line 24 to column 5 line 2, Figures 1-3).

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as obvious over De La Porte in view of Scari and USPN 4,590,539 to Sanjana.

Regarding claims 1-4, De La Porte in view of Scari appears to teach that it would have been obvious to one of ordinary skill in the art to optimize the warps and wefts such that the resulting weave is a tight weave within the scope of the claimed limitation requiring an average length of a smaller side of a gap enclosed by warps and wefts to be between 0 μ m and 50 μ m. Additionally, De La Porte teaches that fibers suitable for the double cloth may comprise glass fibers or polyamide fibers (De La Porte, column 2 lines 17-28) and that the woven fabric may be further impregnated with a polymer matrix (Id., column 2 lines 34-68). As further evidence that it would have been obvious to optimize the warps and wefts, Sanjana is classified in the same field in the art as De La Porte and Sanjana, and teaches a plain woven fabric suitable for use for printed circuit boards, wherein the plain woven fabric may be embedded in a polymer matrix (Sanjana, column 1 line 13 to column 2 line 46, column 3 lines 33-59). Sanjana teaches that the plain woven fabric is preferably a tight weave as that reduces the resin content of the laminate. It would have been obvious to one of ordinary skill in the woven fabric reinforcement art at the time the invention was made to form the woven fabric reinforcement of the prior art, wherein the weave is a tight weave, as taught by Sanjana, as the prior art and Sanjana are classified in the same field in the art, and motivated by the desire of forming a conventional woven fabric

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reinforcement with a tight weave to reduce the resin content of the laminate, based on the intended application.

Response to Arguments

6. Applicants' arguments with respect to claims 1-4 have been considered but are moot in view of the new grounds of rejection.

Conclusion

7. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter Y Choi /PYC/
Examiner, Art Unit 1794

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit
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